

DETAILED ACTION

Applicant's remarks and amendments, filed on February 5, 2010, have been carefully considered. Claims 1 has been amended. Claims 1-3 and 5-6 are still pending.

New Grounds of Rejections based on applicant's amendments filed on February 5, 2010.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1, 3, and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al. (USP No. 7,401,758) in view of Williams et al. (US Pre-Grant Publication 2004/0227267).

1. Regarding claim 1, Liang teaches an in mold manufacturing process for making a wide variety of products such as a credit card by using a transfer molding process. **(See abstract, column 1 lines 50-67 (line 59 especially), and figures 1-6 (figure 2b especially)).**

a. Liang teach the method comprising:

i. A step of forming a transfer sheet by directly arranging an ink receiving layer with a base material sheet.

(1) **See especially figure 2a-2b showing parts 24 and 25 which together provide the ink receiving layer and part 21 which is a temporary carrier layer (base).**

ii. A step of inserting a transfer sheet (part 21 of figures 2a-2b and parts 31-35 of figures 3a-3b) into a mold wherein a surface of the ink receiving layer faces a room of the mold to which resin is to be injected.

(2) **See figures 2a-2b, 3a-3b, and column 6 lines 20-35**

(3) **It is notoriously well known that metal injection molds are used during injection or compression molding methods.**

iii. A step of molding an object such as a card base onto the transfer film, thereby forming a resin molded article on the ink receiving layer.

(4) **See figure 3b and column 6 lines 20-35, 52-59**

iv. A step of taking out said card base joined by said plurality of ink receiving layers from mold.

(5) **See column 6 line 30 and figure 3b**

v. A step of exposing said printing surfaces of said plurality of ink receiving layers by peeling said base (temporary carrier sheet) from ink receiving layers so that only molded object and ink receiving layers are present.

(6) **See demolding action in figures 3a-3b.**

(7) **See column 6 lines 30-33**

vi. A step of printing on ink receiving layers after molding operation.

(8) **See column 7 lines 56-67 disclosing that it is well known in the art to post mold print on a molded article.**

(9) **See part 12 on figure 1 showing a design on a molded article.**

b. With respect to claim 1, Liang does not teach wherein the ink receiving layer is a plurality of ink receiving layers arranged in a two dimensional matrix.

c. However, Williams teaches an in mold decoration process which includes an indexing machine to move a plurality of ink receiving layers (exposed surface [68] of the labels [14]) which are in a spaced relationship. **(See abstract and figures 1-2).**

vii. Williams and Liang are analogous art as they are in the same field of endeavor which is decorating molded articles in an injection molding

process. It would have been obvious to one having the ordinary skill in the art to combine the teachings of Williams with the teachings of Liang for the benefit of using a continuous process. The use of the indexing machine will allow the process to be automated and allow for a large number of ink receiving layers to be decorated.

2. Regarding claim 3 and 6, Liang discloses the addition of additional durable layers on the ink receiving layer. **(See parts 22-23 in figure 2a).**

3. Regarding claim 5, Liang does not teach wherein the printing is executed by an ink-jet printer.

d. However, Williams teaches wherein ink-jet printing is a well known method for printing on in mold decorated articles. **(See paragraph 0035 and 00049).**

e. Ink Jet printing is well known in the art and an obvious choice to one having the ordinary skill in the art in looking to print on a thin card like material.

<p>2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al. (USP No. 7,401,758) in view of Williams et al. (US Pre-Grant Publication 2004/0227267) in view of Aoki et al. (Japanese Patent Publication JP 02001239779 A).</p>
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4. In claim 2 Liang and Williams does not explicitly teach wherein said ink receiving layer is formed of a heat-curable hydrophilic resin.

f. However, Aoki teaches wherein said ink receiving layer is formed of a heat-curable hydrophilic resin. **(See claim 1 disclosing the use of a heat**

curable hydrophilic resin.)

g. Liang/Williams and Aoki are analogous art because they are from the same field of endeavor which is transferring an ink receiving layer unto a molded product. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Liang/Williams and Aoki before him or her, to modify the teachings of Liang/Williams with the teachings of Aoki for the benefit of using a hydrophilic resin as the ink receiving layer to allow printing on the card post production with a water based ink. The motivation for doing so would have been to allow the use of water based inks; as water based inks are common in ink-jet printers. Therefore, it would have been obvious to combine Liang/Williams and Aoki to obtain the invention as claimed in claim 2.

5. Claims 1-3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaoka (Japanese Patent Publication JP 11028856) in view of Aoki et al. (Japanese Patent Publication JP 02001239779 A) and in further view of Williams et al. (US Pre-Grant Publication 2004/0227267).

6. Regarding claim 1, Yamaoka teaches a decorating method used to impart and/or print a design print layer onto a resin molded article. **(See paragraphs 0001-0003).**

h. Yamaoka further teaches:

viii. A step of forming a transfer sheet by forming an ink receiving layer on a base material sheet.

(10) **(See drawings 1-2 showing a transfer sheet (part #1) with a peeling layer (part #3 corresponds to base material sheet) and an ink absorbing layer (part #6)**

ix. A step of inserting the transfer sheet into a cavity of a metal mold where the ink receiving layer faces a room of the mold and the step of injecting the resin. **(See drawing 5 showing the transfer sheet being placed into a mold and injected with resin).**

x. Thereby molding a base which is attached to the transfer sheet. **(See drawing 5 and paragraph 0001-0003 disclosing the injection molding of a resin material onto the transfer sheet in order to impart the ink receiving layer onto the resin molded product.)**

xi. A step of ejecting the mold and peeling (exfoliating) the base material from transfer sheet leaving molded product and ink layer. **(See paragraph 0003).**

(11) *The base material sheet can also be considered to be parts 2 and 3— which are shown in drawing 4 to be removed thus exposing the ink receiving layer after peeling process.*

- i. With respect to claim 1, Yamaoka does not expressly teach wherein a step of performing printing to said ink receiving layer after the injection molding process and ejection of molded product.
- j. However, Yamaoka teaches, that post mold printing is not used in their method only because their process deals with molded products that have curved surfaces. **(See description of prior art or paragraph 0002).**
- xii. It is well known in the art that a card like a credit card can be printed on even after the final card is made. Yamaoka teaches this well known idea as it clearly states that when dealing with flat molded articles, (which can include credit cards) one can print on the article. **(See description of prior art or paragraph 0002).** Therefore, it would have been obvious to one having the ordinary skill in the art to alter the teachings of Yamaoka to include post mold printing when making a card base as claimed since card like credit cards are typically flat.
- xiii. Furthermore, post mold printing can include printing by hand. This is well known in the art as almost every credit card has an area which can be printed on the back 9 for example signature section).
- k. With respect to claim 1, Yamaoka does not explicitly teach the use of a transfer sheet in the manufacture of a card.
- l. However, Aoki teaches the use of transfer sheet molding in the manufacture of a card. **(See claim 1 and paragraphs (0001-0004) which discloses the use of an ink receiving layer to make a card.)**

m. Yamaoka and Aoki are analogous art because they are from the same field of endeavor which is transferring an ink receiving layer unto a molded product. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Yamaoka and Aoki before him or her, to modify the teachings of Yamaoka with the teachings of Aoki for the benefit of making a card that can be easily printed on by an ink jet printer. The motivation for doing so would have been to allow many businesses to order mass produced cards which then can be printed on on-site. Therefore, it would have been obvious to combine Yamaoka and Aoki to obtain the invention as claimed in claim 1.

n. With respect to claim 1, the combination of Yamaoka and Aoki do not teach wherein the ink receiving layer is a plurality of ink receiving layers arranged in a two dimensional matrix.

o. However, Williams teaches an in mold decoration process which includes an indexing machine to move a plurality of ink receiving layers (exposed surface [68] of the labels [14]) which are in a spaced relationship. **(See abstract and figures 1-2).**

xiv. Williams, Yamaoka, and Aoki are analogous art as they are in the same field of endeavor which is decorating molded articles in an injection molding process. It would have been obvious to one having the ordinary skill in the art to combine the teachings of Williams with the teachings of Yamaoka/Aoki for the benefit of using a continuous process. The use of

the indexing machine will allow the process to be automated and allow for a large number of ink receiving layers to be decorated.

7. In claim 2 Yamaoka does not explicitly teach wherein said ink receiving layer is formed of a heat-curable hydrophilic resin.

p. However, Aoki teaches wherein said ink receiving layer is formed of a heat-curable hydrophilic resin. **(See claim 1 disclosing the use of a heat curable hydrophilic resin.)**

q. Yamaoka and Aoki are analogous art because they are from the same field of endeavor which is transferring an ink receiving layer unto a molded product. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Yamaoka and Aoki before him or her, to modify the teachings of Yamaoka with the teachings of Aoki for the benefit of using a hydrophilic resin as the ink receiving layer to allow printing on the card post production with a water based ink. The motivation for doing so would have been to allow the use of water based inks; as water based inks are common in ink-jet printers. Therefore, it would have been obvious to combine Yamaoka and Aoki to obtain the invention as claimed in claim 2.

8. In claim 3 Yamaoka teaches adding an anchor **(adhesive)** layer for enhancing air tightness of said ink receiving layer to said card base is pre-formed on said ink receiving layer. **(See paragraph [0003] and drawing 1 disclosing part number (5) which is an adhesive and added prior to molding.)**

9. In claim 5 Yamaoka teaches wherein said printing is executed by an ink-jet printer. **(See claim 1 and paragraph [0011] disclosing the use of an ink jet printer to print.)**

10. In claim 6 Yamaoka does not explicitly teach adding a step of covering the surface of said ink receiving layer with a cover layer after printing is applied to said ink receiving layer.

r. However, Aoki teaches adding a step of covering the surface of said ink receiving layer with a cover layer after printing is applied to said ink receiving layer. **(See paragraph [0010] disclosing the use of a cover layer on top of the printed layer.)**

s. Yamaoka and Aoki are analogous art because they are from the same field of endeavor which is transferring an ink receiving layer unto a molded product. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Yamaoka and Aoki before him or her, to modify the teachings of Yamaoka with the teachings of Aoki for the benefit of using a resin to cover the just printed ink layer in order to protect the decoration from abrasions. The motivation for doing so would have been to extend the useful life of the printed decoration. Therefore, it would have been obvious to combine Yamaoka and Aoki to obtain the invention as claimed in claim 6.

Response to Arguments

3. Applicant's arguments filed February 5, 2010 have been fully considered but they are not persuasive and/or moot due to new grounds of rejection.

4. **Applicant Argument #1:**

a. Applicant argues that Yamaoka does not disclose wherein an ink receiving layer is exposed after the removal of the base sheet because drawings 1 and 2 in Yamaoka show a peeling layer remaining on the ink receiving layer after base sheet removal.

5. **Examiner Response #1**

b. While drawings 1 and 2 show a peeling layer (3) still attached to the ink receiving layer after the peeling of the base sheet, Yamaoka's teaching is not limited to those drawings.

c. Drawing 4 of Yamaoka teaches wherein the peeling layer (3) and the base substrate (2) are removed in order to expose the ink receiving layer (6) in an embodiment wherein a protective cover (8) which is transparent is used.

Therefore the ink receiving layer (6) is exposed after the peeling of layers 2 and

3.

d. Additionally, the fact that additional layers exist between the ink receiving layer and the base sheet is a fact well known to those having the ordinary skill in the art. First release layers are well known to be used to facilitate easy removal of the base sheet from the ink receiving layers. Furthermore, the use of a cover or protective layer is only necessary in which a design was already placed onto

the molded article prior to the molding process. As discussed earlier, although Yamaoka discloses a pattern printed on before molding step, this is not limiting as Yamaoka's teaching is for the production of a curved article in which post mold printing would be difficult. One having the ordinary skill in the art, when making a flat object would realize that a pattern can be added before or after the mold operation. See for example, the teachings of Liang discussed in the first rejection above. Liang discloses that protective layers, release layers, or peel layers are optional when dealing with post mold printing.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMJAD ABRAHAM whose telephone number is (571)270-7058. The examiner can normally be reached on Monday through Friday 8:00 AM to 5:00 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AAA

/Philip C Tucker/

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